WHAT IS CLAIMED IS:

1. A semiconductor device comprising:

a semiconductor substrate;

a lower electrode and upper electrode formed above said semiconductor substrate; and

a ferroelectric film sandwiched between said lower and upper electrodes and having a perovskite crystal structure,

wherein said ferroelectric film comprises:

an La-containing region which is in contact with said lower electrode and contains La; and

a Pb-containing region which is present on said La-containing region and contains Pb, and

the La concentration in the lowermost surface of said La-containing region is higher than the La concentration in the uppermost surface of said Pb-containing region.

2. The device according to claim 1, wherein no La is present in the uppermost surface of said Pb-containing region.

3. The device according to claim 1, wherein the La concentration in said La-containing region monotonically decreases from the surface in contact with said lower electrode toward said upper electrode, or is constant.

4. The device according to claim 1, wherein said La-containing region further contains at least one element selected form the group consisting of Pb and

Zr.

5. The device according to claim 3, wherein said La-containing region is made of an $LaTiO_3$ film.

6. The device according to claim 5, wherein said $LaTiO_3$ film is an MOCVD film.

7. The device according to claim 5, wherein said $LaTiO_3$ film is an MOCVD film, and the thickness thereof is not more than 20 nm.

8. The device according to claim 1, wherein said Pb-containing region is made of a film selected from the group consisting of a $Pb(Zr, Ti)O_3$ film, $(Pb, La)(Zr, Ti)O_3$ film, $(Pb, Sr)(Zr, Ti)O_3$ film, $(Pb, Ca)(Zr, Ti)O_3$ film, $(Pb, La, Sr)(Zr, Ti)O_3$ film, $(Pb, La, Ca)(Zr, Ti)O_3$ film, $(Pb, Ca, Sr)(Zr, Ti)O_3$ film, and $(Pb, La, Ca, Sr)(Zr, Ti)O_3$ film.

9. The device according to claim 1, wherein said lower electrode is made of Ir.

10. A semiconductor device fabrication method comprising the steps of:

forming a lower electrode above a semiconductor substrate;

forming, on the lower electrode, a base film having a perovskite crystal structure containing La and not containing Pb;

forming, on the base film, a ferroelectric film having a perovskite structure containing Pb; and

forming an upper electrode on the ferroelectric film.

11. The method according to claim 10, wherein the base film is an $LaTiO_3$ film.

12. The method according to claim 10, wherein the base film is an MOCVD film, and the thickness thereof is not more than 20 nm.

13. The method according to claim 10, wherein the ferroelectric film is a film selected from the group consisting of a $Pb(Zr, Ti)O_3$ film, $(Pb, La)(Zr, Ti)O_3$ film, $(Pb, Sr)(Zr, Ti)O_3$ film, $(Pb, Ca)(Zr, Ti)O_3$ film, $(Pb, La, Sr)(Zr, Ti)O_3$ film, $(Pb, La, Ca)(Zr, Ti)O_3$ film, $(Pb, Ca, Sr)(Zr, Ti)O_3$ film, and $(Pb, La, Ca, Sr)(Zr, Ti)O_3$ film.

14. The method according to claim 10, wherein said step of forming the base film and said step of forming the dielectric film are continuously performed without exposing the base film to the atmosphere.

15. The method according to claim 10, wherein said step of forming the lower electrode and said step of forming the base film are continuously performed without exposing the lower electrode to the atmosphere.

16. The method according to claim 10, wherein said step of forming the ferroelectric film and said step of forming the upper electrode are continuously performed without exposing the ferroelectric film to the atmosphere.

17. The method according to claim 10, wherein

the base film is formed by MOCVD.

18. The method according to claim 10, wherein the ferroelectric film is formed by MOCVD.

19. The method according to claim 10, wherein the lower electrode is made of an Ir film.